

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/264,719	KOCHI ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Yogesh K. Aggarwal	2615	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 05/16/2005.
2. ☒ The allowed claim(s) is/are 10-14 (The claims have been renumbered as 1-5 respectively).
3. ☒ The drawings filed on 23 April 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |  |   |
|--|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                     | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|  | 9. <input type="checkbox"/> Other _____   |

## DETAILED ACTION

### *Allowable Subject Matter*

1. Claims 10-14 are allowed.
2. The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record, neither anticipates nor renders obvious the following limitations as claimed:

[Claim 10]: A solid state image pickup apparatus wherein each pixel comprises: a photoelectric conversion element; transfer switch means including a first MOS transistor; a floating diffusion area to receive the signal charge through said transfer switch means; reset switch means including a second MOS transistor; and gate voltage setting means to set the gate voltage respectively of one or the other, or both, of the first and second MOS transistors of each pixel so as to satisfy a condition that the channel voltage of said first MOS transistor is between the depletion voltage of said photoelectric conversion element and the saturation voltage of said floating diffusion area.

### Discussion of prior art

3. AMPLIFICATION TYPE SOLID STATE (JP 6-13597) relates to increasing sensitivity.
4. Akimoto (US Patent # 4,954,895) relates to charges being read out completely with no residual charges by letting the read-out signal charge be  $Q_{sub.S}$ , and the total capacitance associated with the gate of the picture element amplifier MOS transistor be  $C_{sub.A}$ , the gate voltage of the picture element amplifier MOS transistor 34 becomes  $(V_{sub.H} - V_{sub.THR} - Q_{sub.S} / C_{sub.A})$ . Here, since the reset MOS transistor 36 should not be turned on, the following relation should hold  $V_{sub.THR} + V_{sub.THA}; Q_{sub.S} / C_{sub.A}$ .

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5. The prior art fails to teach gate voltage setting means to set the gate voltage respectively of one or the other, or both, of the first and second MOS transistors of each pixel so as to satisfy a condition that the channel voltage of said first MOS transistor is between the depletion voltage of said photoelectric conversion element and the saturation voltage of said floating diffusion area.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K. Aggarwal whose telephone number is (571) 272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.

6. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571)-272-7593. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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YKA

August 18, 2005



DAVID L. OMETZ  
SUPERVISORY PATENT  
EXAMINER